



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/561,317

12/20/2005

John Stark

P/1336-201

2795

2352 7590 02/26/2010
OSTROLENK FABER GERB & SOFFEN
1180 AVENUE OF THE AMERICAS
NEW YORK, NY 100368403

EXAMINER

WEINSTEIN, LEONARD J

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

02/26/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/561,317	Applicant(s) STARK, JOHN	
	Examiner LEONARD J. WEINSTEIN	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12, 16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 and 13-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment of November 16, 2009. In making the below rejections and/or objections the examiner has considered and addressed each of the applicant's arguments.
2. The examiner acknowledges the amendment to claim 9 and notes that claims 16 and 17 have been added.
3. In the amendment the applicant objects to a proposed amendment, submitted via facsimile on October 13, 2009, that was discussed in the interview of October 13, 2009, being attached to the Interview Summary of October 19, 2009 for that interview and included in the application file. Amendment of November 16, 2009, pg. 7-8. The examiner notes:

A complete written statement as to the substance of any face-to-face, video conference, electronic mail or telephone interview with regard to the merits of an application must be made of record in the application, whether or not an agreement with the examiner was reached at the interview. See 37 CFR 1.133(b), MPEP § 502.03 and § 713.01.

MPEP § 713.04. The proposed amendments were discussed and specific arguments were made regarding by both the examiner and the applicant regarding the added limitations. Therefore the propose amendments constituted the subject matter of the interview and were properly included along with the interview summary. The examiner also notes:

During the 3-month period for reply, applicant is encouraged to arrange for an interview with the examiner in order to resolve, with finality, as many issues as possible. In order to afford the examiner time for reflective consideration before the interview, applicant or his or her representative should cause to be placed in the hands of the examiner at least one working day prior to the interview, a copy (clearly denoted as such) of the amendment that he or she proposes to file in response to the examiner's action. Such a paper will not become a part of the file, but will form a basis for discussion at the interview.

MPEP § 708.02 (section VIII, second paragraph, section (B)). This would seem to support the applicant's objection however the rule applies to interviews granted for applications that are

Art Unit: 3746

being examined under the process of accelerated examination. Therefore the proposed amendment submitted October 13, 2009 was properly added as an appendix to the interview summary of October 19, 2009 and included in the file for the instant application.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 9, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stark WO 01/16493 in view of Frenzl US 3,823,872, further in view of Smith US 5,697,361, further in view of Zindle et al. US 6,899,198.

With respect to claim 9:

- a. Stark teaches all the limitations as claimed for a double-cone device of continuous geometry including: a first tapering section 3 having an interior space 8 of hollow frustroconical shape, a second diverging section 22 having an interior space of hollow frustroconical shape, the first tapering section 3 and the second

Art Unit: 3746

diverging section 22 meeting at a neck 19 (element 19 being an orifice located the junction between element 3 and element 22) at the smaller diameter end of the interior space 8 of the first tapering section 3, the second diverging section 22 extending from the neck 19, to achieve suction, a third diverging section 4 having an interior space 9 of hollow frustroconical shape, extending from the larger diameter end of the interior space of the second section 22.

- i. Stark fails to teach the limitations that are taught by Frenzl for a diverging section (18, 22) to be porous.
 - ii. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a cone of Stark, by replacing an orifice forming a neck and a diverging section comprising a solid continuous in wall with porous diverging section, as taught by Frenzl, in order to eliminate or reduce a fluid boundary layer on the inner wall of the diverging section in series with a converging section of the double cone in order to increase a double cone's efficiency (Frenzl – col. 2 ll. 56-64).
- b. A combination of Stark and Frenzl teaches the limitations as discussed but fails to teach noise reduction.
- i. Smith teaches the limitations for a jet venturi pump in which a porous diverging section 125 is used to reduce the level of noise generated when external air is induced to flow into ports 117 by high pressure air flow exiting region 116 (Smith – col. 5 ll. 31-50). This is similar to the instant invention where high pressure feed flow fluid is

Art Unit: 3746

conveyed from inlet 310 through orifice 308 where the low pressure around 308 allows material 312 to be sucked into the instant double cone device through holes 306. The low pressure area around orifice 308 is analogous to the low pressure region 116 of Smith.

ii. Smith teaches that element 125 is a porous filter muffler which reduces noise during operation and filters air entering induction ports 117. In the sense of a filter, element 125 is analogous to the porous diverging section 22 which is not taught having noise reducing characteristics. It would have been obvious to one ordinary skill in the art at the time the invention was made to provide a double cone device, as taught by Stark, with a porous filtering diverging section around a neck region, as taught by Frenzel, further modified, as taught by Smith, to reduce noise during operation because noise reduction is known in the art to be a desirable and advantageous feature for pump (more specifically jet or injector pump) operation (Smith – col. 5 ll. 25-30).

c. A combination of Stark, Frenzl, and Smith teaches the limitations as discussed but fails to teach the limitations taught by Zindle.

i. Zindle teaches the limitations for varying the size of pores or interstitial spaces in a muffler material generally used to reduce sound generated by a jet pump 2 (Zindle - col. 3 ll. 39-47). Further Zindle teaches that it was known in the art to vary size of said pores and space on the order of a nano range of sizes.

Art Unit: 3746

ii. Where a claimed improvement on a device or apparatus is no more than "the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement," the claim is unpatentable under 35 U.S.C. 103(a). *Ex Parte Smith*, 83 USPQ.2d 1509, 1518-19 (BPAI, 2007) (*citing KSR v. Teleflex*, 127 S.Ct. 1727, 1740, 82 USPQ2d 1385, 1396 (2007)). A combination of Stark, Frenzl, and Smith teaches a base device for a double cone device operating on the principles of a jet pump, with respect to Stark, including a sleeve or porous material surrounding a neck portion (low pressure region) of the device for filtering incoming/induced/sucked fluid while reducing the level of noise generated during the device's operation, with respect to Frenzl and Smith. Zindle teaches that it was known in the art to improve the performance of noise reducing muffler for a jet pump by varying the size of the pores within the muffling material. Stark, Frenzl, and Smith teach a base device ready for improvement through a known technique taught Zindle which renders the combination of the above elements not to be a unique challenge or difficult for one of ordinary skill in the art. Therefore the limitation of a porous section having holes with various sizes to provide quiet operation is obvious under 35 U.S.C. 103(a) because it is no more than the predictable use of prior art elements according to their established functions resulting in the mere

Art Unit: 3746

application of a known technique to a piece of prior art ready for improvement.

d. A combination of Stark, Frenzl, Smith, and Zindle teaches the limitations as discussed but fails teach explicitly a porous section with pores sizes in the range of 50 to 500 μm .

i. While Zindle teaches it was known to provide a muffler material with pores or interstitial spaces within a nano range of sizes, the claimed range is not explicitly taught.

ii. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a porous section with pores having a size within the range of 50 to 500 μm , since the claimed values are merely an optimum or workable range. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to claim 16:

Stark teaches all the limitations as claimed for a double-cone device of continuous geometry including: [claim 16] wherein the continuous geometry of the device is configured to cause flow profiles of the fluid in the neck 19, in the second porous diverging section 22, and the in the third diverging section 4 to remain in contact with the wall of the neck 19, with the wall of the second porous diverging section 22, and with the wall of the third diverging section 4. Stark teaches that an improvement of

Art Unit: 3746

the double-cone device 21 is that wear on the walls of the device is reduced, however this is due to less turbulent flow (Stark - col. 2 ll. 28-20). Stark states that wall material is better able to resist wear resulting from fluid flow, therefore wall is still subject to fluid contact, the difference being that contact is less detrimental to the lifespan of the double-cone device 21 (Stark - col. 2 ll. 37-40).

With respect to claim 17:

Smith teaches that a filter coupled to the neck of a jet pump, analogous to the double cone devices of Stark and Frenzl, reduces sound during operation (Smith col. 25-30). Zindle teaches that the level of noise reduction can be improved by varying the size of pores or interstitial spaces within muffling material 18 analogous to the filter 125 of Smith (Zindle col. 3 ll. 39-47). Therefore the combination of Stark, Frenzl, Smith and Zindle teach the limitations of a device with a continuous geometry, with respect to Stark, that would provide a reduction in noise during operation in combination with porous muffler material taught by Smith as modified by Zindle (Smith col. 5 ll. 25-30; Zindle col. 3 ll. 39-47).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stark WO 01/16493 in view of Frenzl US 3,823,872, further in view of Smith US 5,697,361, further in view of Zindle et al. US 6,899,198, as applied to claim 9 above. A combination of the references teaches all the limitations as discussed including, with reference to Stark, a conical angle of a first tapering section 3 is greater than 0° , but a combination does not explicitly teach a conical angle that is less than or equal to 10° . It would have been obvious to one having ordinary skill in the art at the time the invention

Art Unit: 3746

was made to form a first tapering section with a conical angle that is greater than 0° but less than or equal to 10° , since the claimed values are merely an optimum or workable range. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stark WO 01/16493 in view of Frenzl US 3,823,872, further in view of Smith US 5,697,361, further in view of Zindle et al. US 6,899,198, as applied to claim 9 above. A combination of the references teaches all the limitations as discussed including, with respect to Stark, a conical angle of a third diverging section 4 is greater than 0° , but a combination does not explicitly teach a conical angle that is less than or equal to 10° . It would have been obvious to one having ordinary skill in the art at the time the invention was made to form a third diverging section with a conical angle that is greater than 0° but less than or equal to 10° , since the claimed values are merely an optimum or workable range. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stark WO 01/16493 in view of Frenzl US 3,823,872, further in view of Smith US 5,697,361, further in view of Zindle et al. US 6,899,198, as applied to claim 9 above. A combination of the references teaches all the limitations as discussed including, with respect to Stark, a second section 22 having an end with a larger diameter, the larger

Art Unit: 3746

diameter being greater than a smaller diameter of the smaller diameter end of the first tapering section 3. A combination of the references does not explicitly teach that an end of a second section has a diameter that is less than one and a half times larger than the smaller diameter end of a first tapering section. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form a larger diameter second end of a porous diverging section of a double cone nozzle to be less than one and a half times larger than a small diameter end of a first tapering section that transitions into the first end of the porous diverging section, since the claimed values are merely an optimum or workable range. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Response to Arguments

10. Applicant's arguments with respect to claims 9-12 and 16-17 have been considered but are moot in view of the new ground(s) of rejection. However, the examiner notes that the applicant asserts that Stark et al. US 6,701,960 does not teach the limitations of claim 16. The applicant has not provided a reason or argument why Stark does not teach the limitations of claim 16, but only provides an assertion that reference does not teach the limitations of the claim. The examiner disagrees because Stark does teach the limitations of claim 16 as discussed above in section 8.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 3746

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD J. WEINSTEIN whose telephone number is (571)272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3746

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles G Freay/
Primary Examiner, Art Unit 3746

/Leonard J Weinstein/
Examiner, Art Unit 3746